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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/076,976	02/15/2002	Xiangxin Bi	2950.18US02	1411

7590 05/21/2003

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EXAMINER	
LE, HOA T	
ART UNIT	PAPER NUMBER
1773	

DATE MAILED: 05/21/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

HG

Office Action Summary	Application No.	Applicant(s)	
	10/076,976	BI ET AL	
	Examiner	Art Unit	
	H. T. Le	1773	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) 18-30 is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) 18-30 is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☐ The drawing(s) filed on _____ is/are objected to by the Examiner.

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. § 119

13)☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☐ All b)☐ Some * c)☐ None of:

1.☐ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).

Attachment(s)

15)☒ Notice of References Cited (PTO-892)
16)☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
17)☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s) _____ .
18)☐ Interview Summary (PTO-413) Paper No(s). _____ .
19)☐ Notice of Informal Patent Application (PTO-152)
20)☐ Other:

DETAILED ACTION

Continued Examination Under 37 CFR 1.114

1. A request for continued examination under 37 CFR 1.114, including the fee set forth in 37 CFR 1.17(e), was filed in this application after final rejection. Since this application is eligible for continued examination under 37 CFR 1.114, and the fee set forth in 37 CFR 1.17(e) has been timely paid, the finality of the previous Office action has been withdrawn pursuant to 37 CFR 1.114. Applicant's submission filed on February 17, 2003 has been entered.

Claim Rejections - 35 USC § 112

2. Claims 18-21, 23-28 and 30 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

The amendment filed February 17, 2003 is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: the new upper limit of 150 nm (claim 18) in particle size of the claimed titania particles. Neither is there support for an upper limit of 125 nm (claim 19) nor for an upper limit of 25 nm (claim 30). Although there is support for 100 nm and 500 nm, there is no support for 150 nm, 125 nm or 25 nm as the upper limit.

Applicant is required to cancel the new matter in the reply to this Office Action.[1]

Claim Rejections - 35 USC § 102

3. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

> A person shall be entitled to a patent unless –
>
> (b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

4. Claims 22 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Wiederhoft et al (US 5,840,111).[2]

Wiederhoft teaches rutile titanium dioxide particles having maximum value of the particle size distribution of between 1 and 10 nm. See col. 1, lines 8-11and col. 2, and lines 52-54.

Applicants argued that the sol-gel process taught by Wiederhoft does not yield rutile titanium dioxide citing the reference "Surface and bulk characterization of titanium-oxo clusters and nanosized titania particles through O solid state NMR" by Scolan et al ("Scolan reference") as support. The sol-gel process in this reference is based on growth hydrolysis and condensations reactions of metallo-organic compounds in particular metal alkoxides. This process is stated in the Wiederhoft as undesirable because of known disadvantages (see Wiederhoft, col. 1, line 46 to col. 2,

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[1] Applicants should note that upon cancellation of the new matter, all claims may be subject to rejections under 35 USC 102 as applied to claims 22 and 29 set forth below.

[2] Copy of this reference has been provided with the previous office actions.

line 11). Therefore, the titanium dioxide particles produced by the process taught by Wiederhoft are not the same product produced by the process taught in the Scolan reference cited by Applicants. Thus, anatase particles are not the only resulting particles as argued.

Not all sol-gel processes are created equal. In fact, there are two major differences between the sol-gel process taught by Scolan and sol-gel process by Wiederhoft. First, Wiederhoft process is a *non*-hydrolytic sol/gel process as opposed to the hydrolytic sol/gel process taught in the Scolan reference. Secondly, the main reactants in the Wiederhoft process involve NO organic compounds while the process taught by Scolan is based on an organic compound (i.e. a metal alkoxide).

In addition, the titanium dioxide particles in the Wiederhoft reference are produced by the sulphate process which is known to yield rutile titanium dioxide (see Wiederhoft, col. 2, lines 29-30 and col. 3, lines 32-36).

Therefore, contrary to applicants' argument, the titanium dioxide particles disclosed in the Wiederhoft reference comprise rutile titanium dioxide.

5. Claims 22 and 29 are rejected under 35 U.S.C. 102(b) as being anticipated by Basque et al (US 3,923,968).

Basque et al disclose rutile titanium dioxide particles having an average effective diameter of not larger than 100 nm, in particular a diameter range of from 10 to 100 nm. See col. 2, lines 63-68; col. 10, lines 8-10; and also Tables I & II, last column.

6. Other references are cited as art of interest.

7. Any inquiry concerning this communication or earlier communications from the examiner should be directed to H. T. Le whose telephone number is 703-308-2415. The examiner can normally be reached on 10:00 a.m. to 7:30 p.m., Mondays to Friday.

H. T. Le
Primary Examiner
Art Unit 1773

hl
May 3, 2003